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ABSTRACT

An instructor's manual and student activity guide on making a rubber stamp are provided in this set of prevocational education materials which focuses on the vocational area of trade and industry (graphics). (This set of materials is one of ninety-two prevocational education sets arranged around a cluster of seven vocational offerings: agriculture, home economics, distributive education, health occupations, world of work, trade and industry, and office occupations.) The instructor's guide is organized into the following elements: title of activity, duration of activity (eight to twelve periods), activity goals, nine instructional objectives, related vocational clusters, and activity implementation (description, safety precautions, materials needed, teacher preparation prior to class, during the class, follow-up activities, answer keys to student check point activities, and masters for duplication [a sheet to be answered by the student relating to the occupational area and a student check sheet]). The student activity guide provides step-by-step instructions (narrative and illustrations) for completing each instructional objective. At the end of each set of instructions is a student check point (evaluation activity). Descriptions for six occupations (e.g., engraver, print-shop helper, plate gager) conclude the document. (JH)

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ED169379

T & I – GRAPHICS, RUBBER STAMP

Kit No. 90

INSTRUCTOR'S MANUAL

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State Department of Education
Office of Vocational Education
Prevocational Education
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In Cooperation With

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Clemson University
Clemson, South Carolina 29631

1978

CE 020 504

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
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TITLE OF ACTIVITY

Kit No. 90, Trade and Industry – Graphics, Rubber Stamp

DURATION

Main Activity: 7–9 periods
Follow-up Activity: 1–3 periods

GOALS

The student will have an understanding of graphic problems and their solutions through the production of a rubber stamp.

INSTRUCTIONAL OBJECTIVES

Each student will choose an address of a friend, teacher, or their parents to print.

Given proper instruction, each student will identify the tools used in the activity.

Each student will identify the parts of a character of type.

The student will identify the material needed to complete this activity.

The student will set the lines of type.

The student will secure the type in a chase.

The student will produce a matrix.

The student will produce a rubber stamp.

The student will print using the stamp.

VOCATIONAL CLUSTERS

Health Occupations
Office Occupations
Distributive Education

ACTIVITY IMPLEMENTATION

A. Activity Description

The students will set type; make a matrix and produce a rubber stamp. The students will simulate designers, printers, and assemblers.

B. Safety

Due to the heat produced, care should be taken when using the rubber stamp press.

When using type, be aware of the sharp corners on the type.

The cleaning agent used to remove the rubber cement is poisonous and flammable. Store it in a cool place. Use only in a well ventilated area, away from flame.

C. Materials

1. Audio Visual Equipment
   None
2. Technical Equipment
   1 rubber stamp press
   9 8" x 7" x 1" chase (20.32 x 17.78 x 2.54 cm)
   10 German silver composing sticks, 6" (15.24 cm)
   10 rust proof galleys 8¾" x 13" (22.22 x 33.02 cm)
   3 font spartan 12 pt. caps
   assortment foundry quads and spaces
   1 wood planer block 4½" (11.43 cm)
   1 rawhide mallet
   2 dozen no. 1 med. quoins
   2 no. 1 quoin key
   2 boxes 12 pt. brass and copper thin spaces
   assortment 6 pt. slugs
   furniture
3. Expendable Materials
   10 sheets 8" x 7" (20.32 x 17.78 cm) 2 Ga sheetmetal
   1 2" x 4" (5.08 x 10.16 cm) plastic resin matrix per student
   1 2" x 4" (5.08 x 10.16 cm) rubber stamp material per student
   1 2" x 4" (5.08 x 10.16 cm) block of scrap wood per student
   1 ink pad
   1 jar of rubber cement per class, 12 oz.
   1 gal. lacquer thinner
   1 can talcum powder

D. Preparation Prior to Class

Obtain all expendable materials.

Reproduce the student's checklist, one per student.

Locate an area in your room to place the press. Arrange another area to set type in.

Allow ample time for the press to heat-up. Do not allow use before the proper temperature is reached.

E. During Class Session

INTRODUCTION — This activity is concerned with the printing industry, almost everything we use in our technological society has printed material related to it. The people in this industry range from executives of large printing companies, to designers, printers, and skilled laborers like pressman. The activity itself is concerned with making a rubber stamp. You as a designer will determine the type of stamp that you want to make. And you will produce your design through an orderly step by step process.

Pass out the student check sheet. Explain to the students that the checklists must be checked by you before they proceed through the activity.

Pass out the student activity guide.

Pass out one sheet 8½" x 11" (21.59 x 27.94 cm) paper for the design layout.

Instruct the students to follow the guide and turn in checklists as they complete each instructional objective.

The first 2 days will probably be concerned with tool and material identifications.

It will take 3 to 4 days to produce the rubber stamp.

Inventory all material after each class usage.

F. Follow-up Activities

Each student will do at least two VIEW Fact Sheets concerning printing.

Students will locate jobs related to the printing industry in the want ads of a newspaper.

ANSWER KEY

OBJECTIVE II

1. Press
2. Chase
3. Silver composing stick
4. Rust proof galleys
5. Font spartan 12 pt. caps
6. Foundry quad and spaces
7. Printer's tweezers
8. 4½" wood planer block (11.43 cm)
9. Rawhide mallet
10. Med. quoins
11. Quoin key
12. Brass and copper spaces
13. Slugs
14. Furniture

OBJECTIVE III

1. Groove
2. Foot
3. Neck
4. Face
5. Counter
6. Serif
7. Shoulder
8. Nick

OBJECTIVE IV

1. Sheetmetal
2. Rubber stamp material
3. Matrix
4. Wood block
5. Rubber cement

MASTERS FOR DUPLICATION

VIEW Fact Sheet
Student Check Sheet

VIEW FACT SHEET

NAME _____ CLASS _____ OCCUPATION _____

A. List the advantages (good points) of this occupation (job).

B. List the disadvantages (bad points) of this occupation (job).

C. List three things you should know to do this occupation (job).
1.
2.
3.

D. What type of education should you get to be prepared (do) for this occupation (job)?

E. What courses must you take to go into this occupation (job)?

F. What do you think your future in this occupation (job) will be?

G. What wage can you expect in this occupation (job)?

H. What are the working hours of this occupation (job)?

I. To learn more about this occupation (job), write to:

J. Using a scale of 1 to 5, circle the number that measures your interest in this occupation (job) as a possible career.

I don't like it. ← 1 2 3 4 5 → I like it.

C

STUDENT CHECK SHEET

	Instructor's Initials
OBJECTIVE I	_____
OBJECTIVE II	_____
OBJECTIVE III	_____
OBJECTIVE IV	_____
OBJECTIVE V	_____
OBJECTIVE VI	_____
OBJECTIVE VII	_____
OBJECTIVE VIII	_____
OBJECTIVE IX	_____

T & I – GRAPHICS, RUBBER STAMP

Kit No. 90

STUDENT
LEARNING ACTIVITY GUIDE

Prepared by

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INTRODUCTION

This activity is concerned with the printing industry. Many items used in our homes and businesses must be designed and printed. The people involved in the printing process range from printing company executives, to technical people like printers and designers, to skilled laborers, like pressmen and Linotype operators. Your activity will carry you through some of these jobs. The activity itself is concerned with designing a rubber stamp. This could be a slogan or your own name. You as a designer will determine the type of stamp you will make.

GOALS

The students will have an understanding of printing problems and their solutions through the production of their own rubber stamp.

DIRECTIONS

Follow each step carefully. Be sure to have your instructor initial your student check sheet after each objective has been completed.

MATERIAL

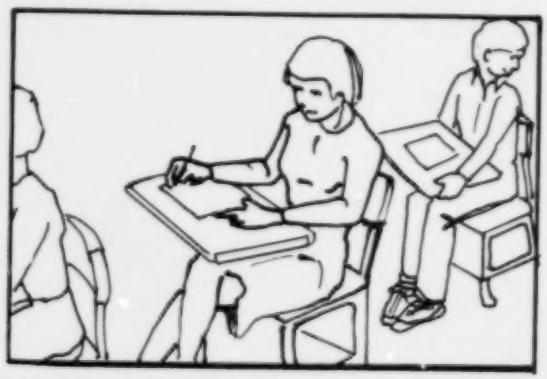
The materials needed for this activity will be acquired during the activity. As you go through the activity you will gain an understanding of their functions.

PROGRAMMED TEXT

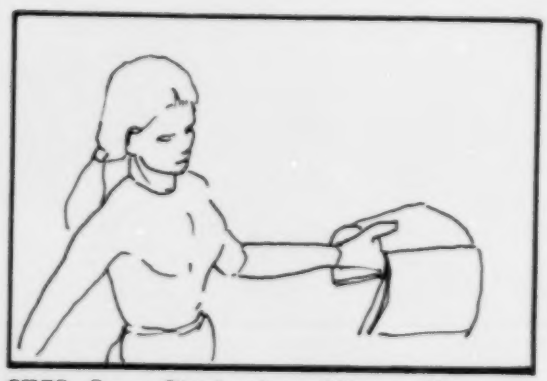
Instructional Objective 1

Each student will choose an address of a friend, teacher or parent to print.

STEP 1 – Decide upon someone's address, either a friend or your own family.



STEP 2 – Write it out correctly on a piece of paper.



STEP 3 – Check the address with your teacher or a phone book to ensure its accuracy.

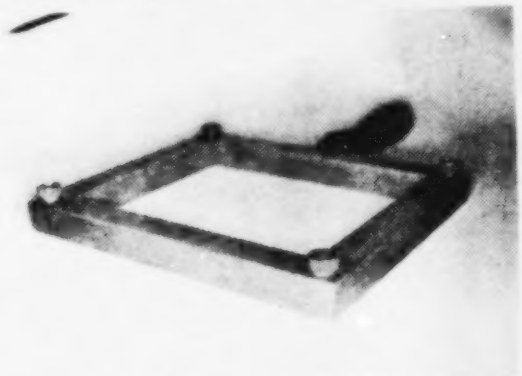
Check Point

Show the correct name and address to your instructor. Have your instructor initial your check sheet.

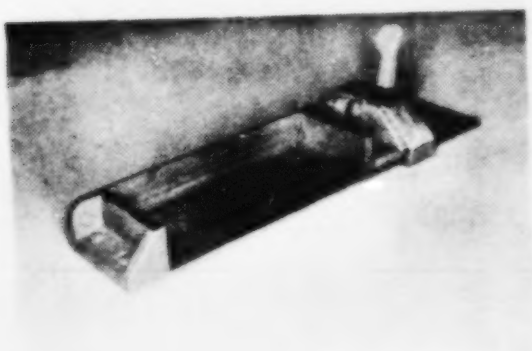
Instructional Objective II

The student will identify 14 tools used in this activity.

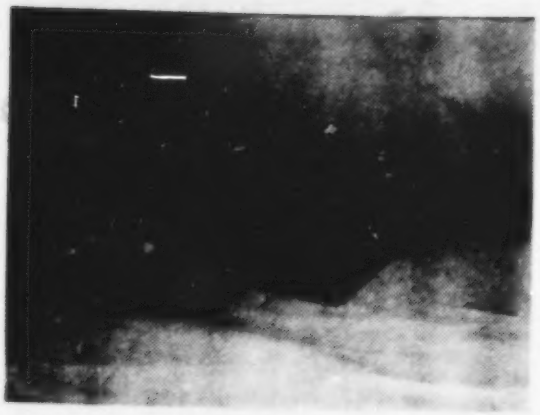
STEP 1 – Rubber stamp press is a machine which will produce the rubber stamp.



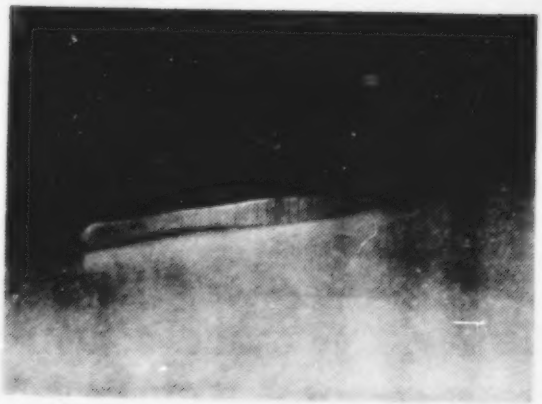
STEP 2 – The 8" x 7" x 1" (20.32 x 17.78 x 2.54 cm) chase is used to hold type ready for printing.



STEP 3 – Silver composing stick is used to set type.

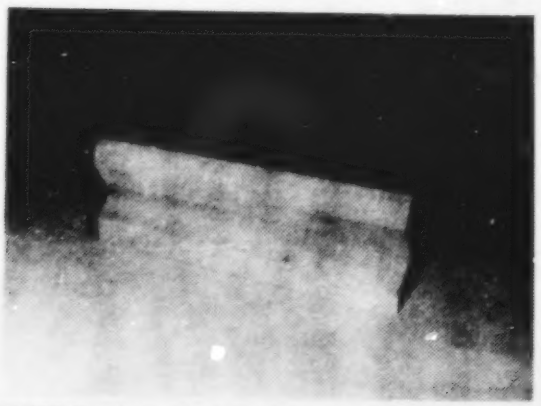


STEP 4 – Rust proof galleys are used to store typeset material.



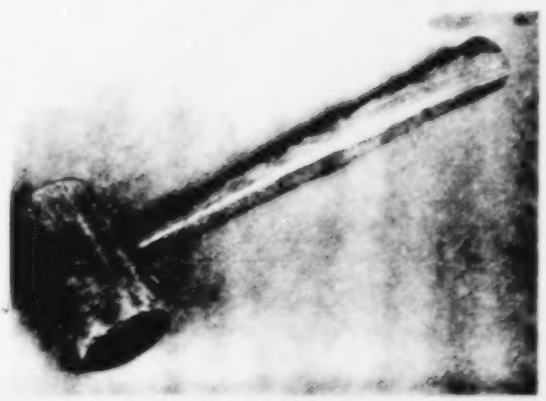
STEP 7 – Printer's tweezers can be helpful in setting type in rows.

STEP 5 – Font spartan 12 pt. caps is type consisting of all capital letters.

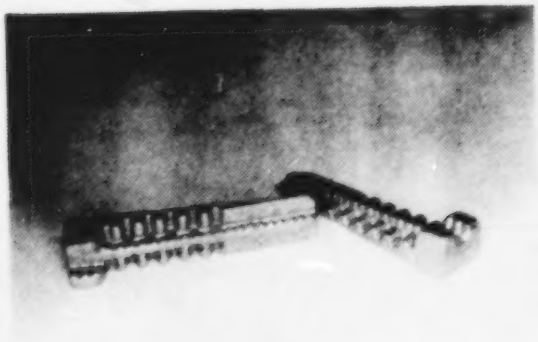


STEP 8 – Wood planer block 4½" (11.43 cm) is used in adjusting the height of set type.

STEP 6 – Foundry quads and spaces are blank pieces of type used to space rows.



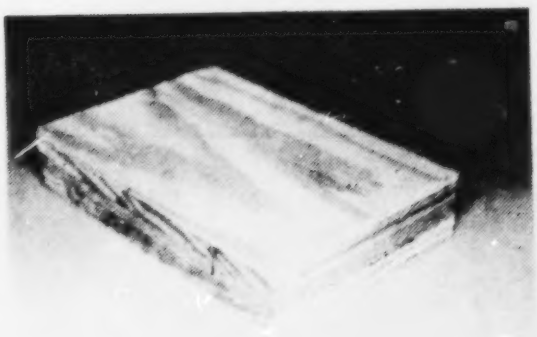
STEP 9 – Rawhide mallet used to adjust the height of set type.



STEP 10 – Medium quoins are used to lock type in the chase.

STEP 13 – Slugs are long lead strips used to space between lines of type.

STEP 11 – Quoin key is used to tighten quoins and secure the set type in the chase.



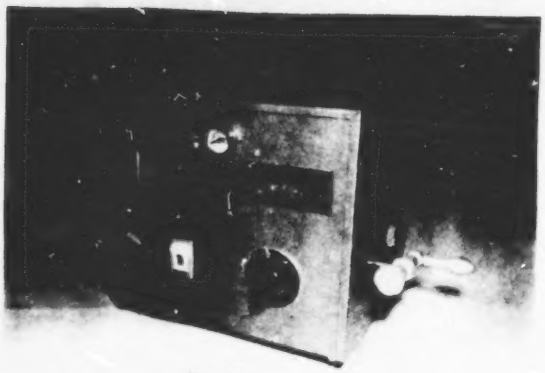
STEP 14 – Furniture are pieces of wood or metal less than type height that are placed in printing forms to fill in blank spaces.

STEP 12 – Brass and copper spaces are thin spaces used to tighten type in the composing stick.

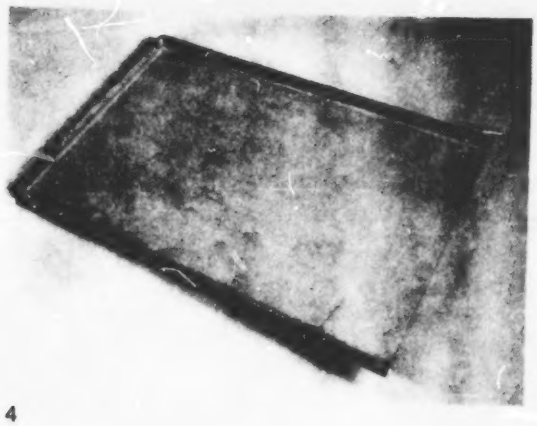
Check Point

On a separate piece of paper, list 1–14 and identify the following. Turn in your sheet to the instructor and have your instructor initial your check sheet.

12



1



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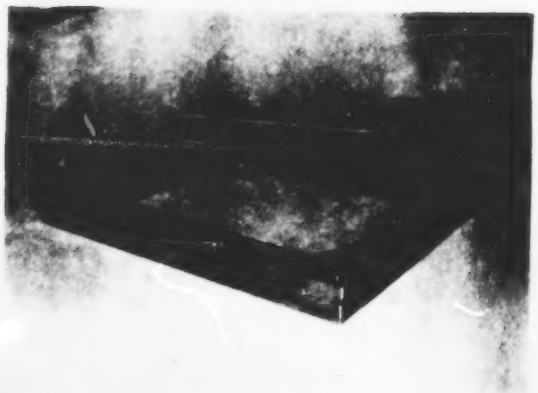


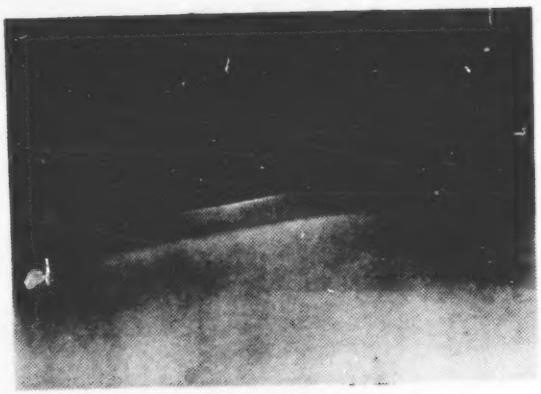
2

5

3

6

13



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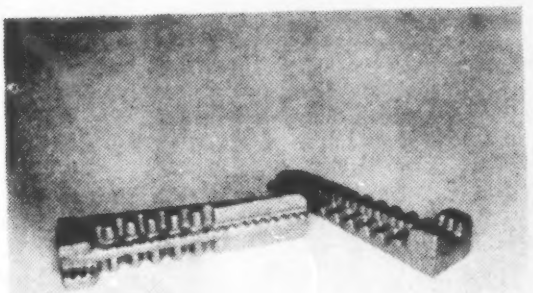

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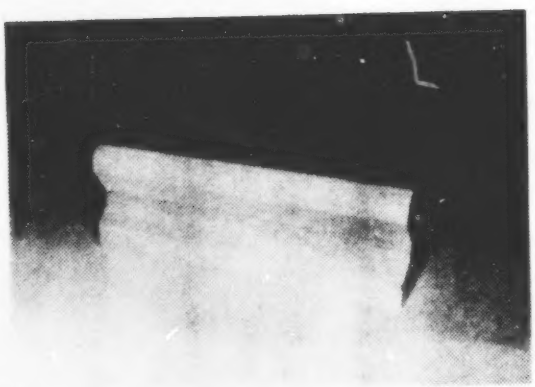

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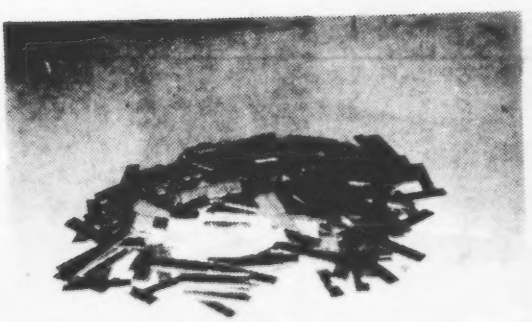
11

9



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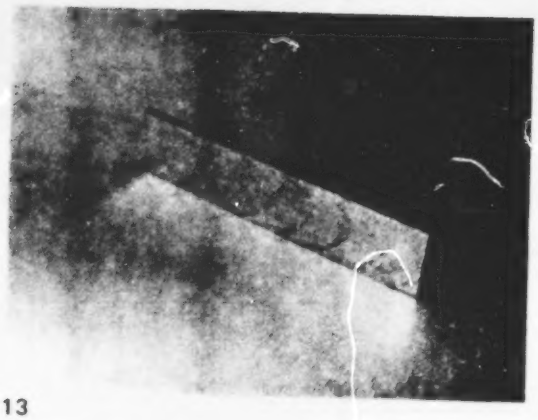

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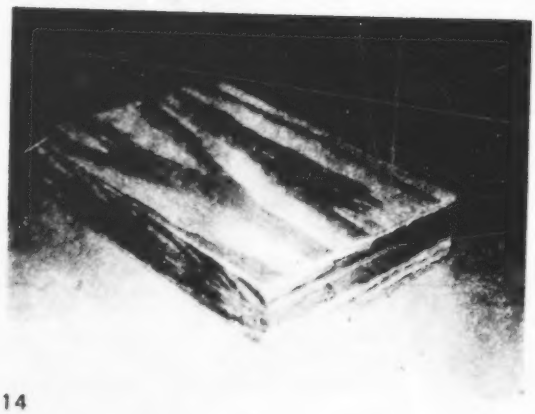

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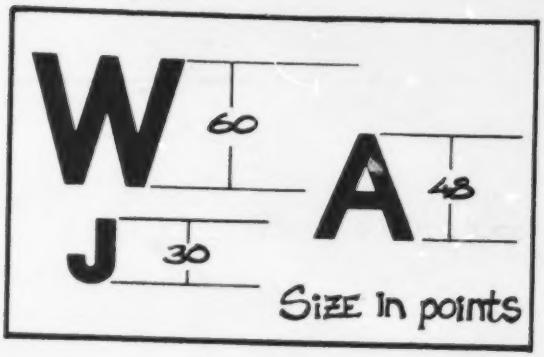
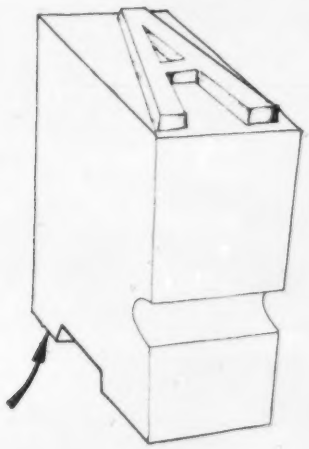
Instructional Objective III

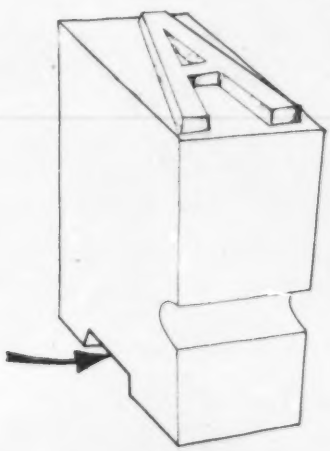
The student will identify the parts of a character of type.



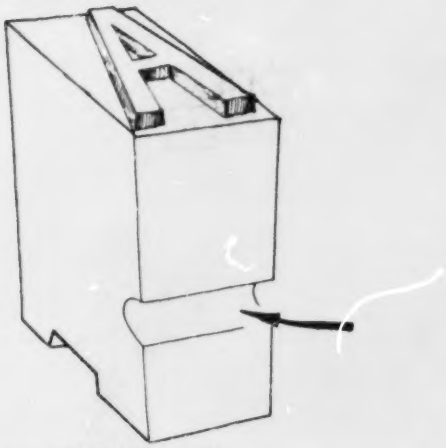
STEP 1 – The type has nine important areas. The most important is the point size. This tells a printer the size of the character.



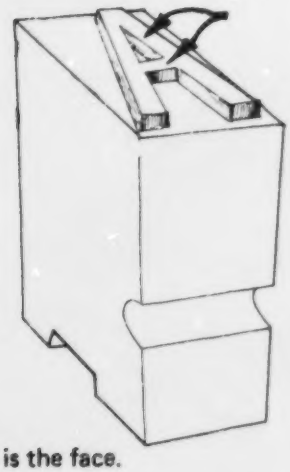
STEP 2 – This is the foot. Type rests on its foot.



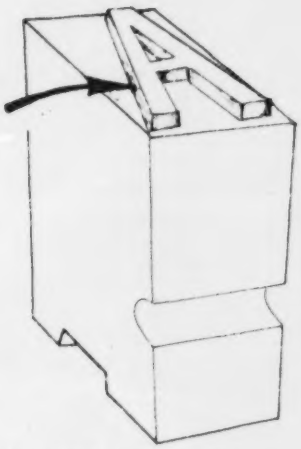
STEP 3 – This is the groove.



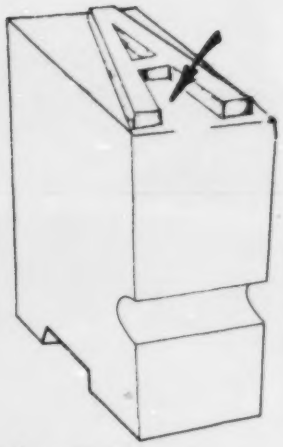
STEP 4 – This is the nick.



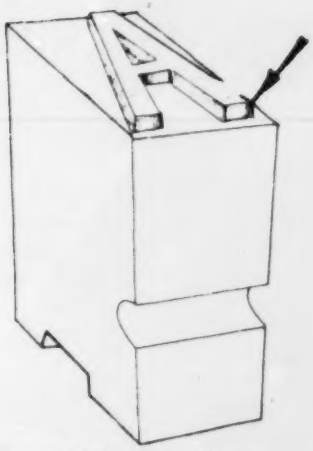
STEP 7 – This is the face.



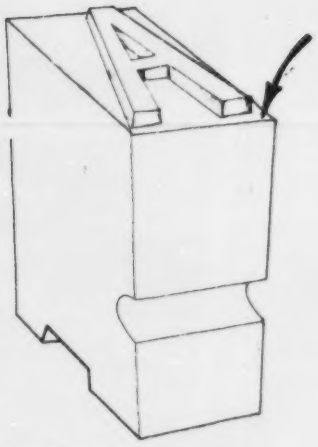
STEP 5 – This is the neck.



STEP 8 – This is the counter.



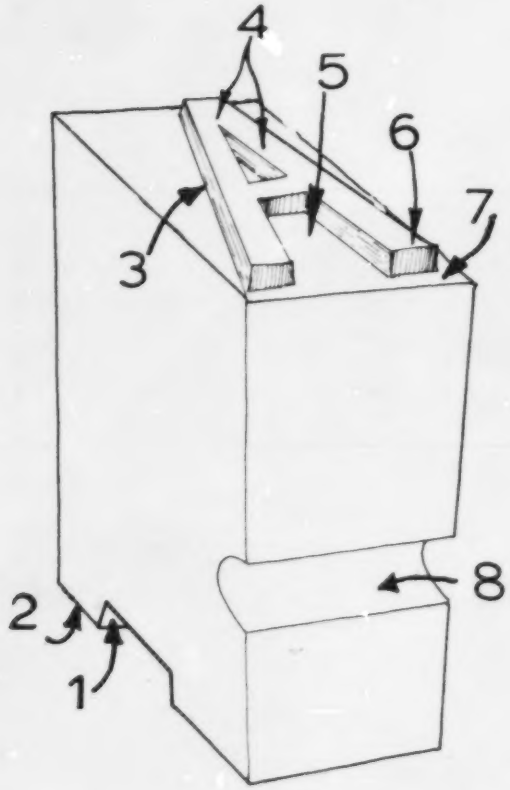
STEP 6 – This is the serif.



STEP 9 – This is the shoulder.

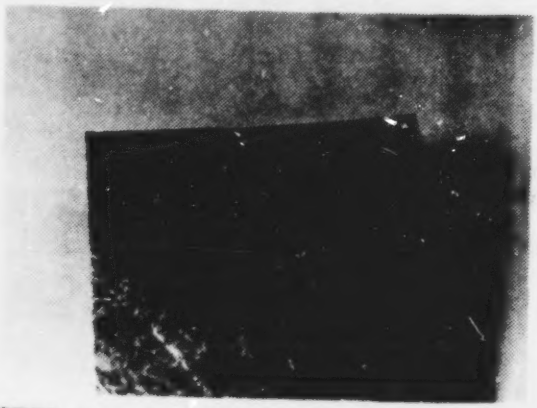
Check Point

On a separate sheet of paper, identify items 1–9 and turn the sheet in to your instructor. Have your check sheet signed by your instructor.



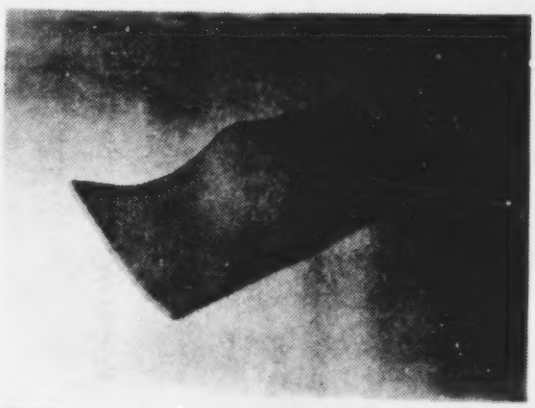
Instructional Objective IV

The student will identify the material needed to complete this activity.



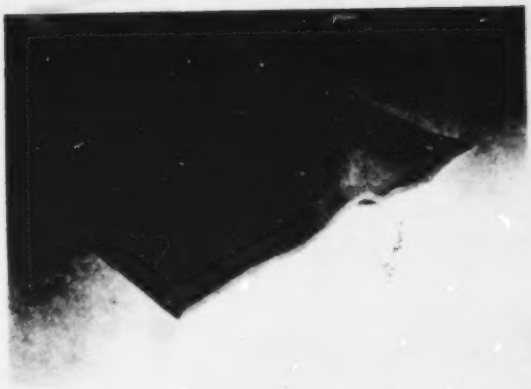
STEP 1 – The 29 Ga. sheetmetal is used during the heating process of stamp making.

STEP 2 – This is the plastic resin used to make the matrix.



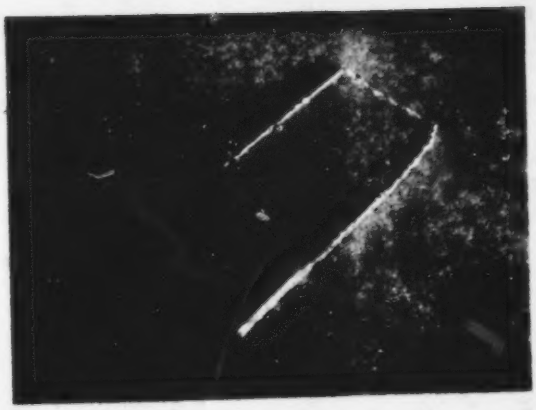
STEP 3 – This is the rubber stamp material.

STEP 4 – This is the scrap wood that will be used as the block to mount the stamp.



2

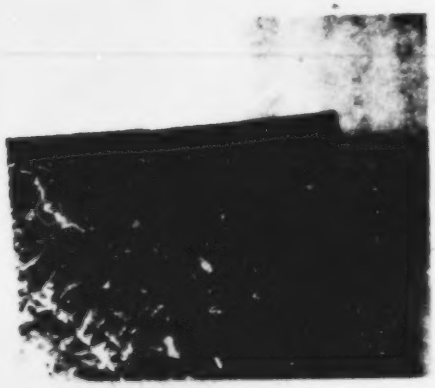
STEP 5 – This is the jar of rubber cement used to secure the stamp to the block.



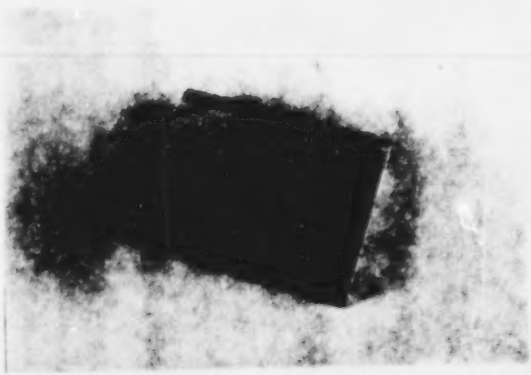
3

Check Point

On a separate piece of paper, identify materials 1–5 and turn the sheet in to your instructor.



1

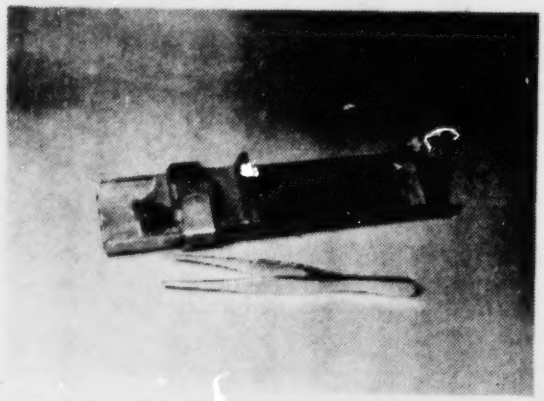


4

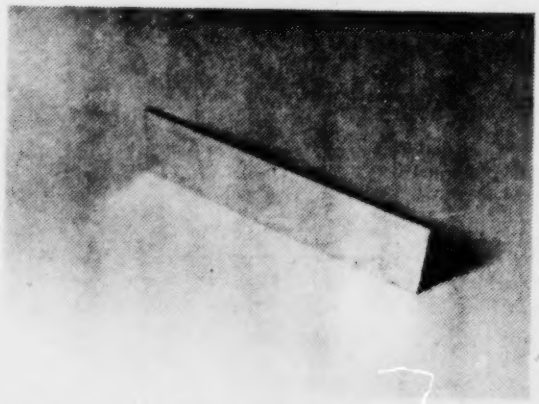
STEP 5 – From the printer's case, select the first letter of the first word.

Instructional Objective V

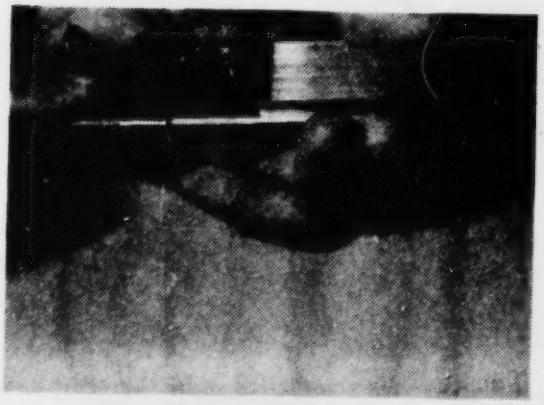
The student will set the lines of type.



STEP 1 – Obtain a composing stick, printer's tweezers.

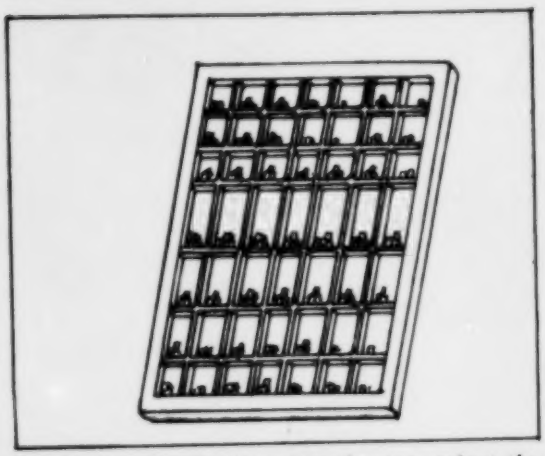


STEP 2 – Obtain a slug from its storage area.

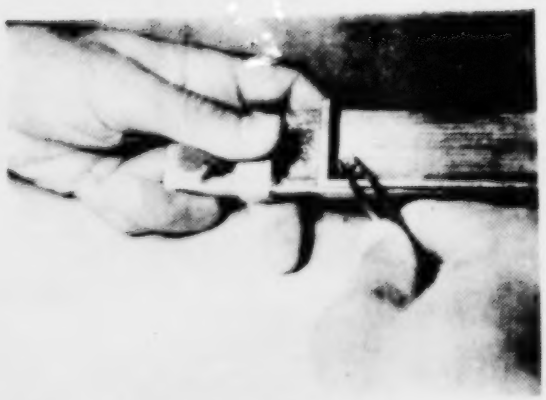


STEP 3 – Place the slug in the composing stick.

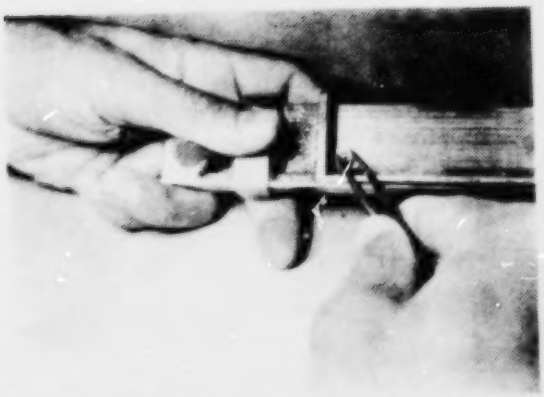
STEP 4 – Using the lever on the composing stick, slide the adjustable knee against the end of the slug. This should form a tight fit for typesetting.



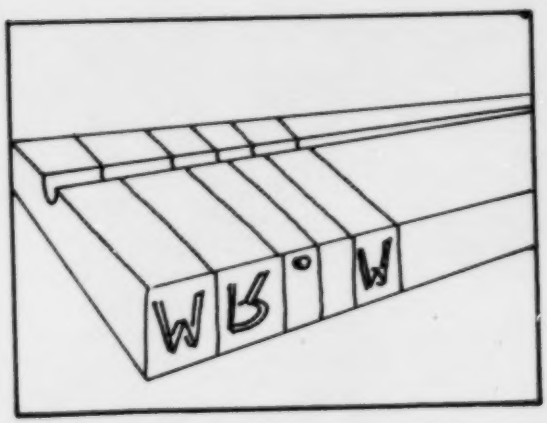
STEP 5 – From the printer's case, select the first letter of the first word.



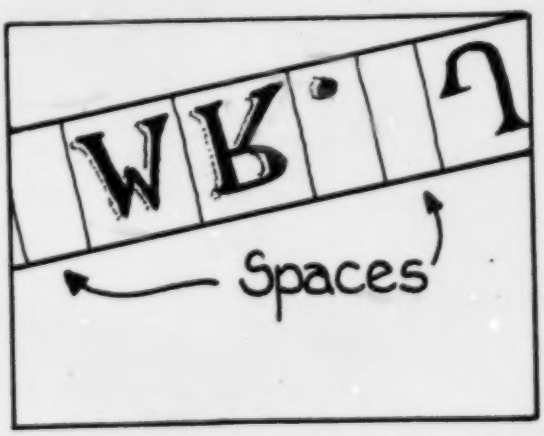
STEP 6 – When setting type, hold the composing stick in the left hand and set all type with the right hand.



STEP 7 – Begin composing with the first letter of the first word.

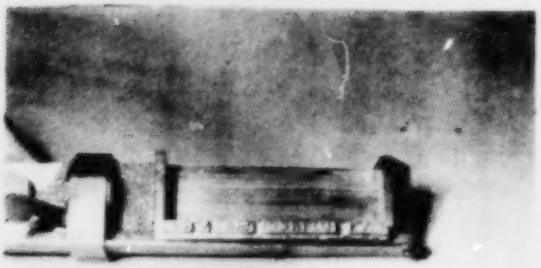


STEP 8 – Check all characters for proper location and position. Place all nicks up on the composing stick. The nicks should form a smooth groove along the line you have set.



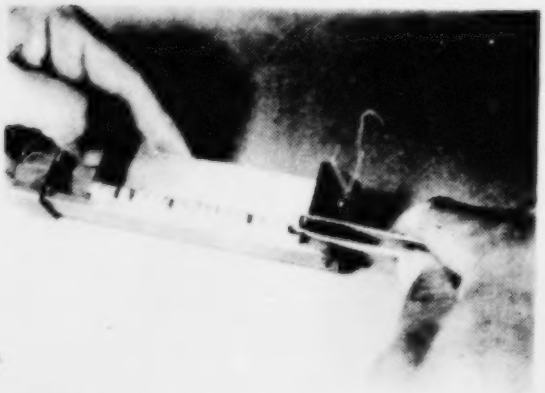
STEP 9 – Use spaces between words like Mr. and Mrs., or a person's first and last names.

20

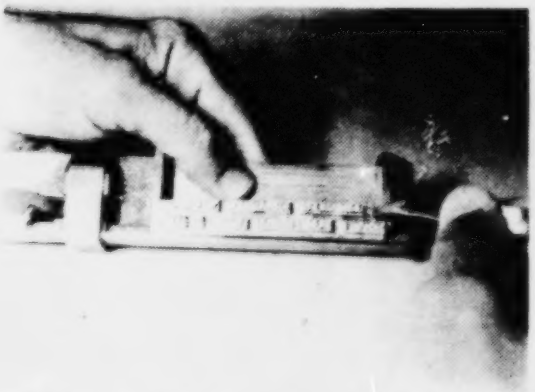


STEP 10 – After the first line has been set,it must be centered in the line. To do this,place the type set line near the center of the stick.

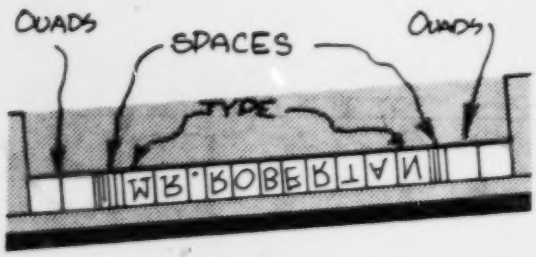
STEP 13 – When the first line of type is secure in the composing stick, slide another slug into the stick. Now you are ready to set the second line of type.



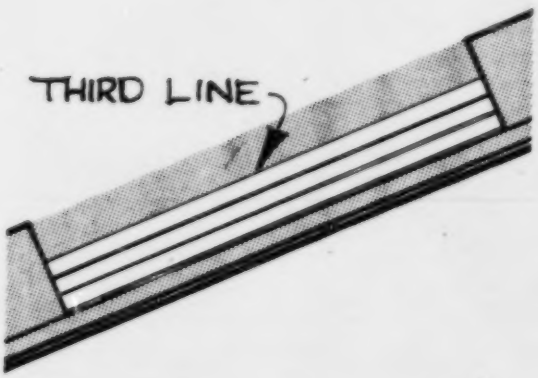
STEP 11 – Place a quad on each side of the line of type.



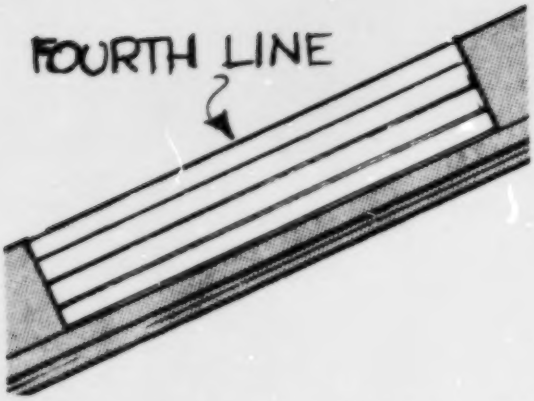
STEP 14 – Set the second line of type and secure it in the composing stick following Steps 7–13.



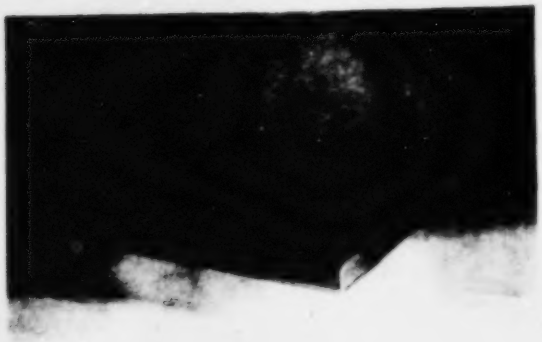
STEP 12 – Repeat Step 11 until quad will not fit on either side. Try a smaller spacer on each side. Continue this procedure until no more spaces fit. Smaller spaces are used next to the type not at the ends of the stick.



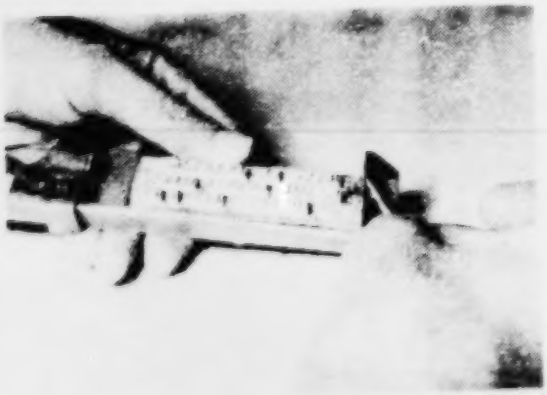
STEP 15 – Set the third line of type and secure it in the composing stick following Steps 7–13.



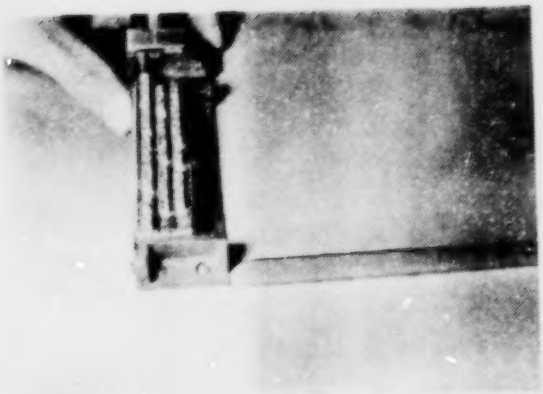
STEP 16 – Set the fourth line of type and secure it in the composing stick following Steps 7–13.



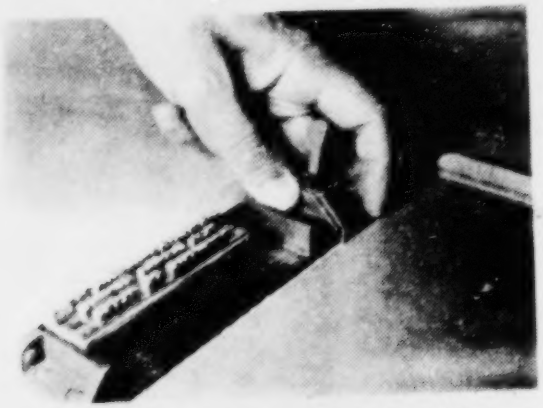
STEP 17 – Obtain a blank galley to transfer the type to.



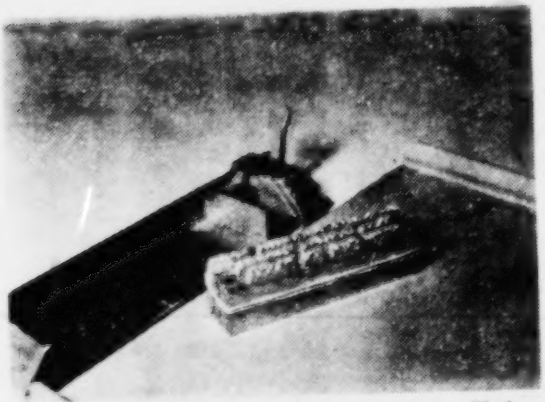
STEP 18 – Place two rubber bands tightly around the lines of type.



STEP 19 – Place the composing stick next to the edge of the galley.



STEP 20 – Release the composing stick knee clamp.



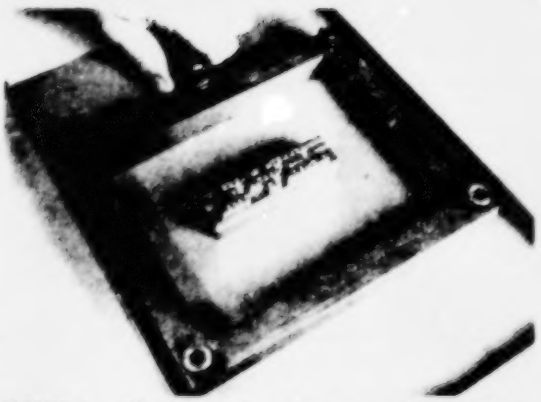
STEP 21 – Slide, do not lift, the type off the composing stick and onto the galley.

Check Point

Have your instructor check the galley and initial your check sheet.

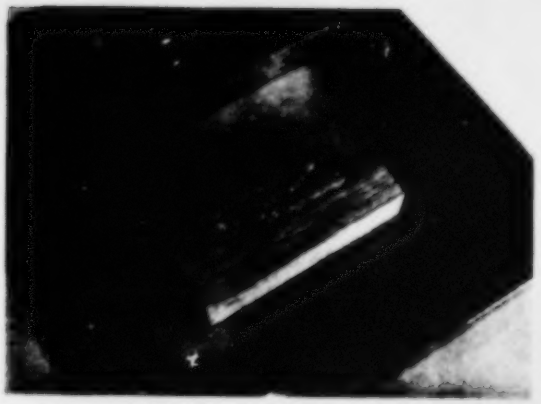
Instructional Objective VI

The student will secure the type in a chase.

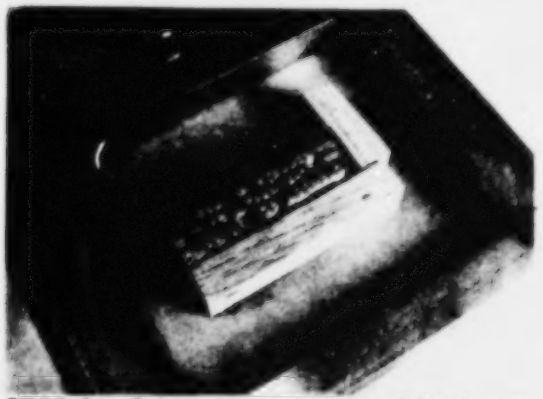


STEP 1 – Position the chase over the type on the galley.

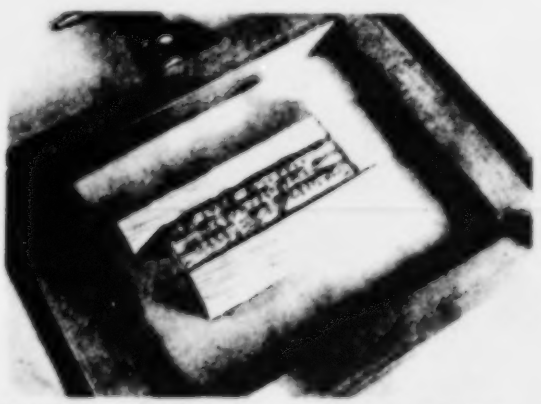
STEP 2 – The procedure to lockup the type is called the chaser lockup. Select a piece of furniture (medium size) which is a little longer than the line of type.



STEP 3 – Place it along the bottom of the block of type with the left edge even with the left edge of the type.

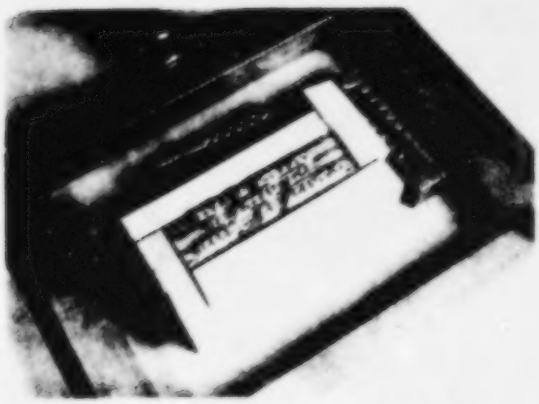


STEP 4 – Select a second piece of furniture; be sure it is a little longer than the right side of the form of type. Butt one end of the furniture along the right end of the first piece of furniture.

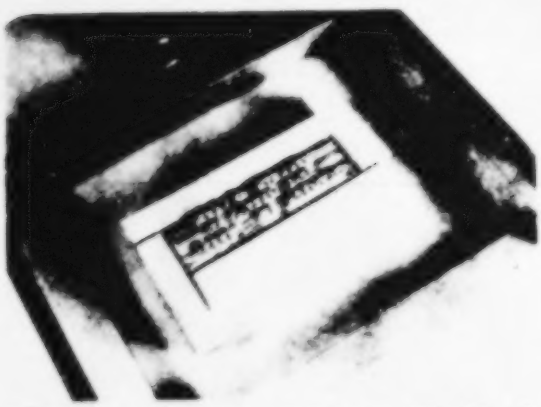


STEP 5 – Select a third piece of furniture, the same size as the first piece. Place it along the top side of the form with the right end butted against the second piece of furniture.

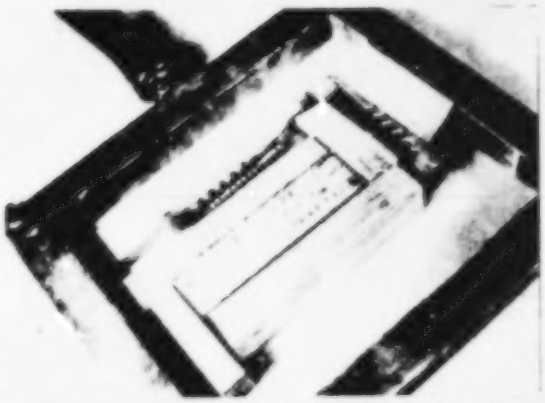
STEP 6 – Select a fourth piece of furniture, the same size as the second piece of furniture.



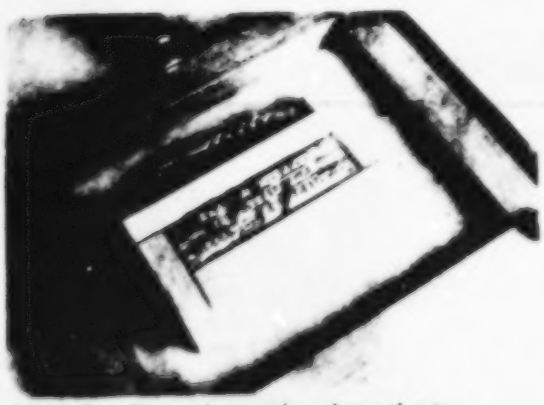
STEP 9 – and right side of the furniture.



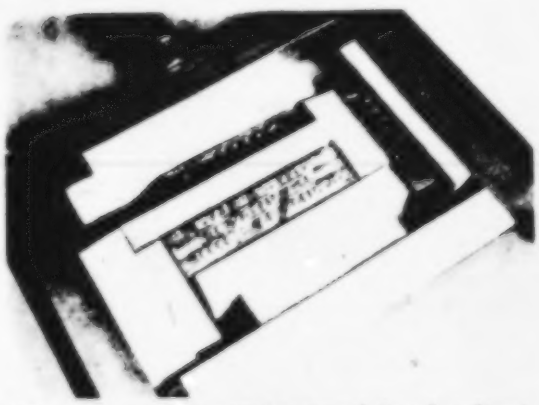
STEP 7 – Place this against the left side of the form, butting one end against the third piece of furniture.



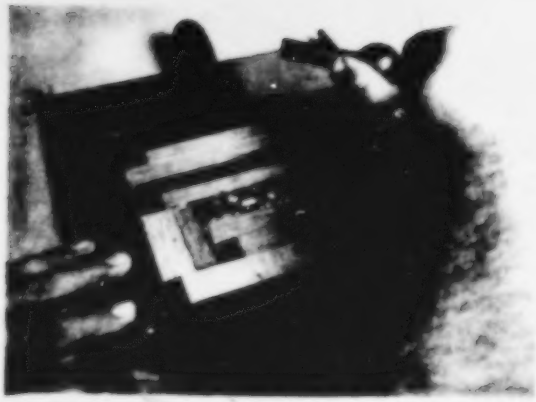
STEP 10 – Place two pieces of wood against the quoins; each should be the same size as the furniture opposite the quoins.



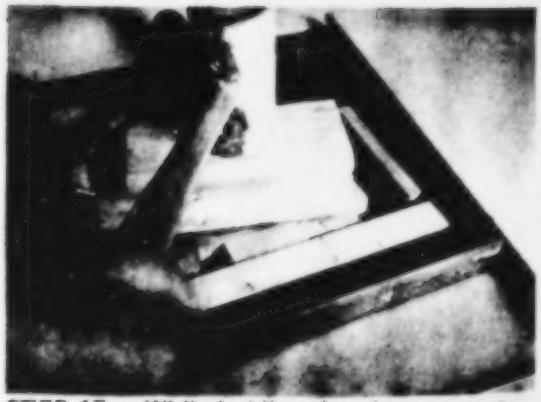
STEP 8 – Place the quoins along the top,



STEP 11 – Arrange the remaining furniture around the edge of the chase until all the remaining area is filled.

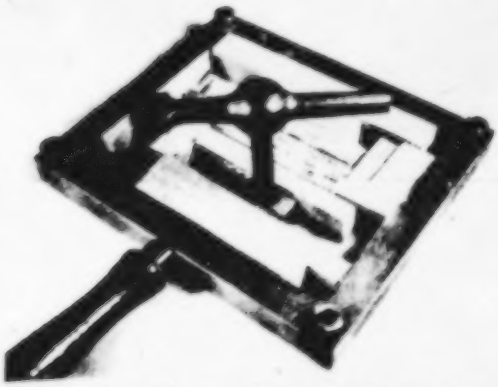


STEP 12 – Using the quoin key, tighten the top quoin first with moderate tension; then tighten the right quoin with moderate tension. Remove rubber bands.



STEP 15 – While holding the planer, tap the planer to set all the type to a uniform height.

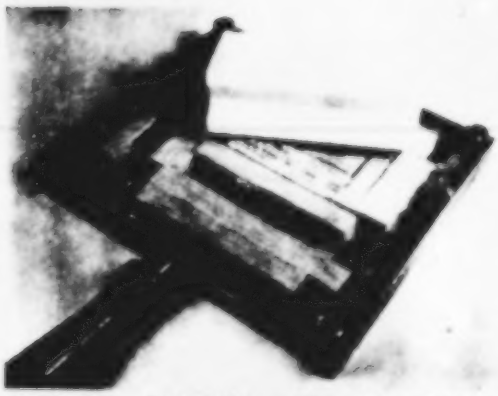
STEP 13 – Obtain a wooden planer block and rawhide mallet.



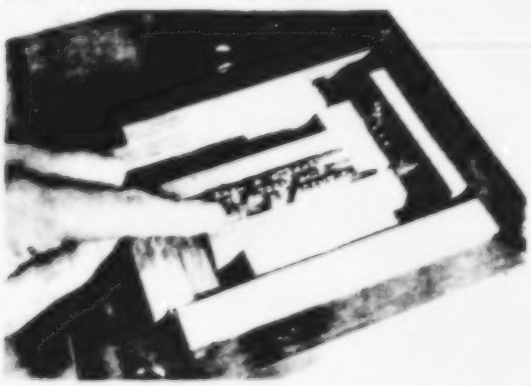
STEP 16 – Now, retighten both the top and right quoins with the quoin key.

Check Point

Using your fingers, check all the lines of type to inspect type for a secure fit. Ask your instructor to inspect the chase and sign your check sheet.



STEP 14 – Place the wooden planer block on top of the form of type.

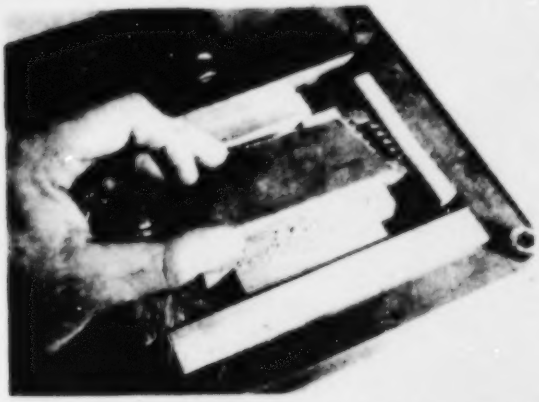


Instructional Objective VII

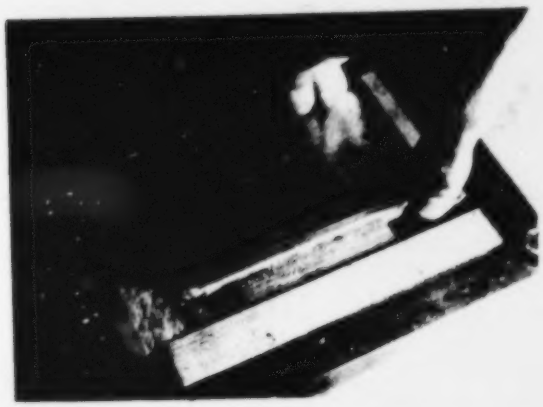
The student will make a matrix.

STEP 1 – Obtain the talcum powder and sprinkle a light coat of it across the type.

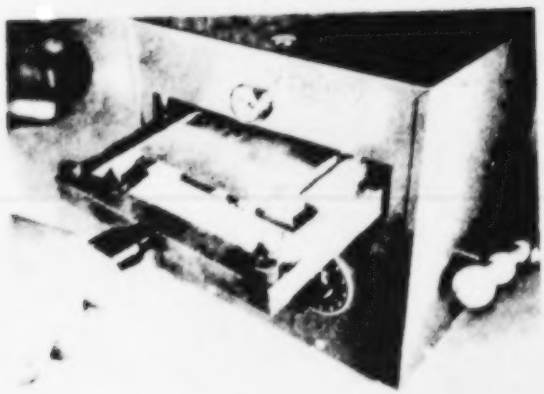
STEP 2 – Obtain a piece of matrix material.



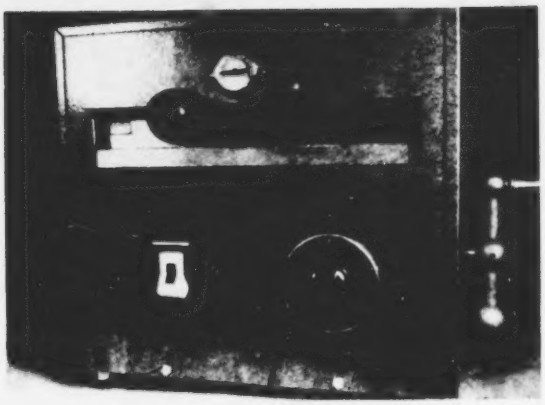
STEP 3 – Place the matrix material over the type; be sure it is centered.



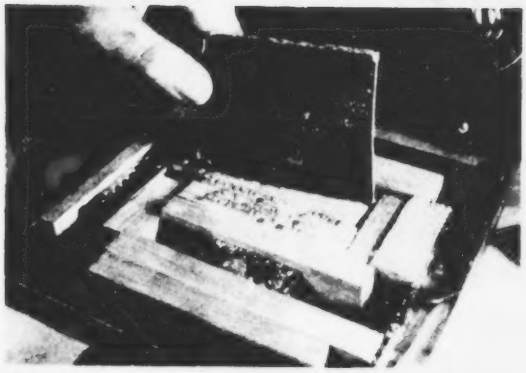
STEP 4 – Gently place the 28 Ga. sheetmetal over the matrix.



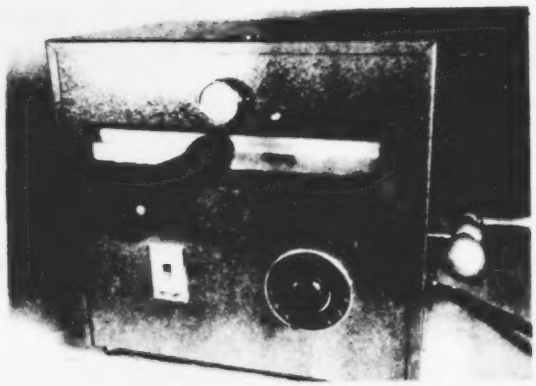
STEP 5 – Place one sheet of 28 Ga. sheetmetal on the bottom platen of the press unit. Then place the chase in the unit.



STEP 6 – Set the press in the preheat position for 4–5 minutes.



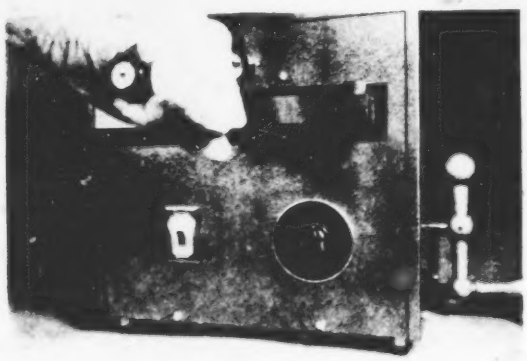
STEP 9 – Check to see if the chase is cool and remove the matrix.



STEP 7 – Lock the press down on the chase for a 9 minute heating to form a matrix.

Check Point

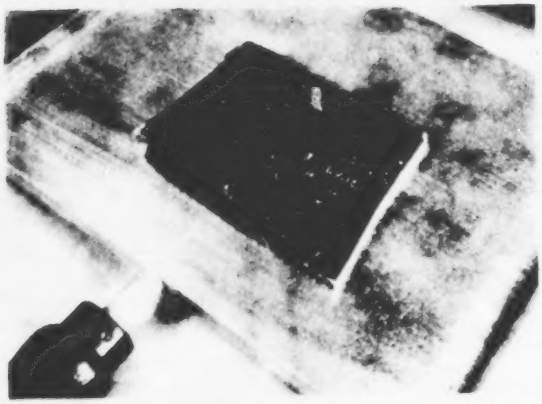
Have your instructor check your matrix and initial your check sheet.



STEP 8 – Remove the chase from the press. Allow it to cool.

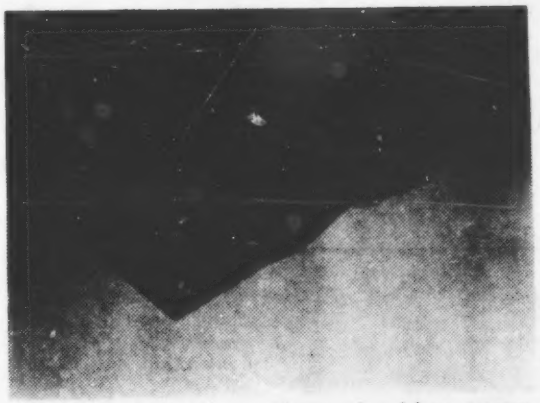
Instructional Objective VIII

The student will produce a rubber stamp.

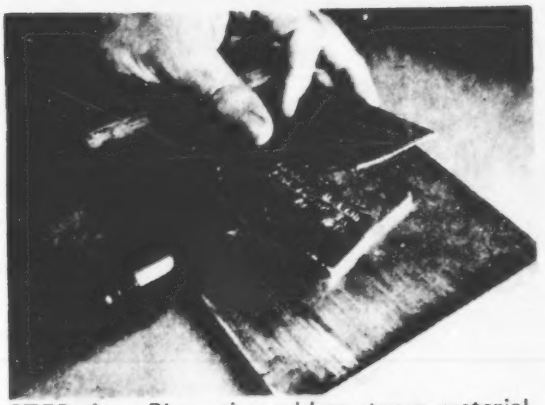


STEP 1 – Place the matrix on the heating plate.

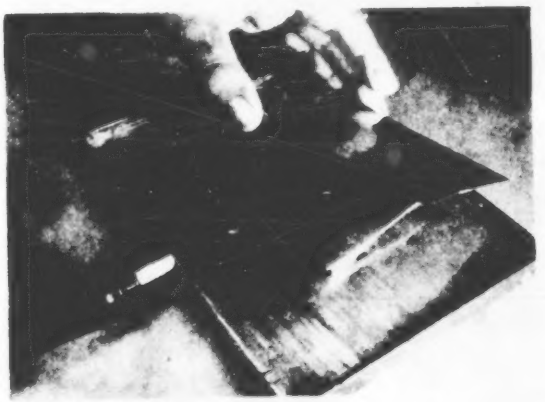
STEP 2 – Sprinkle a light cover of talcum powder on the matrix. Do not over-apply (or fill any of the impressions with powder).



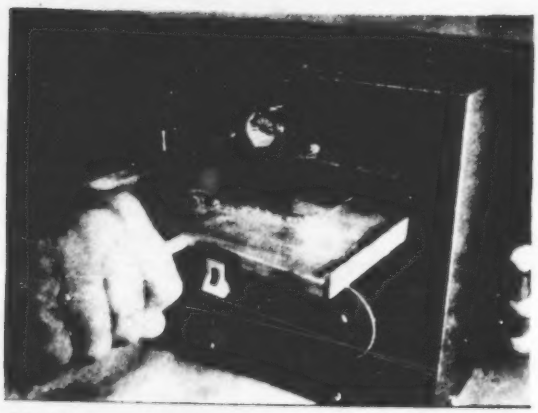
STEP 3 – Obtain a piece of rubber stamp material.



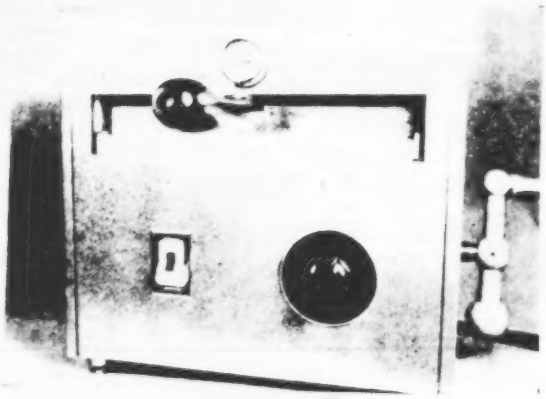
STEP 4 – Place the rubber stamp material over the center of the matrix.



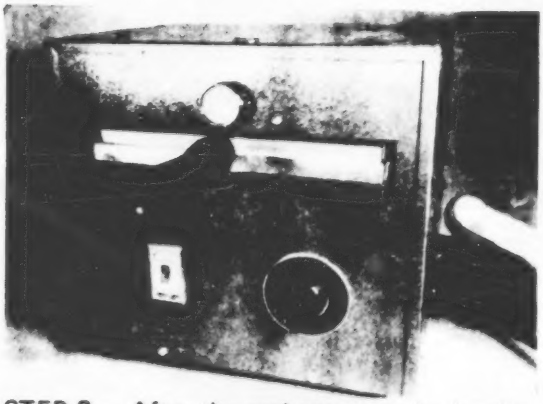
STEP 5 – Place a sheet of 28 Ga. sheetmetal over the material.



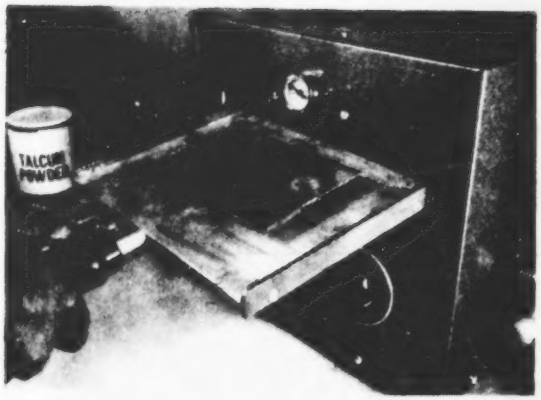
STEP 6 – Carefully position the plate in the stamp unit. Turn the handle until contact is made with the sheetmetal.



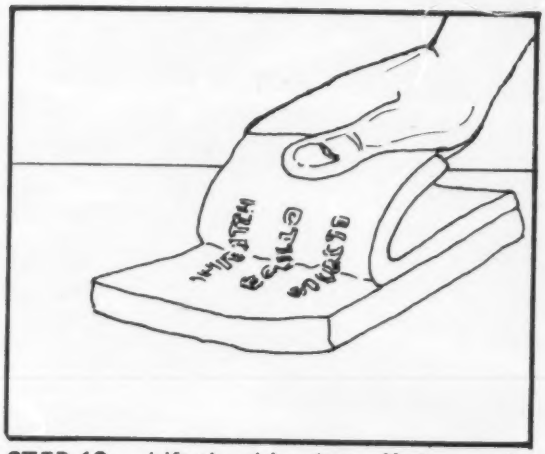
STEP 7 – Preheat the plate in the unit for one minute.



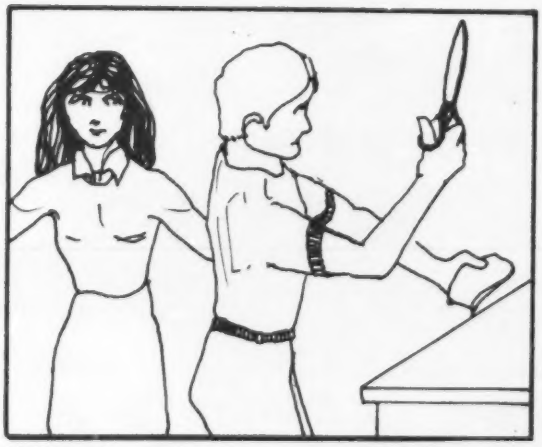
STEP 8 – After the preheat, turn the handle two complete turns and heat for two more minutes.



STEP 9 – After two minutes, remove the plate from the unit and allow it to cool.



STEP 10 – Lift the thin plate off the matrix after it has cooled. Carefully peel the rubber stamp from the matrix.



STEP 11 – Trim the excess rubber from the stamp edges.

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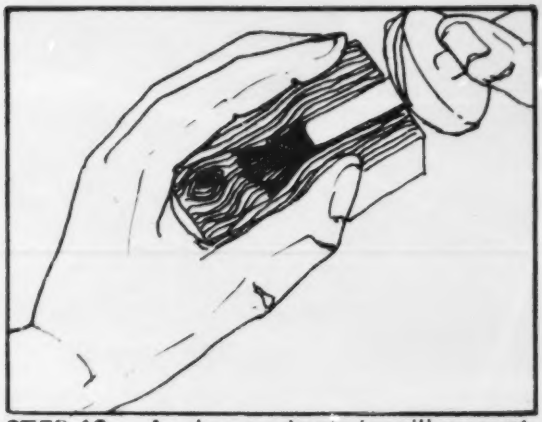
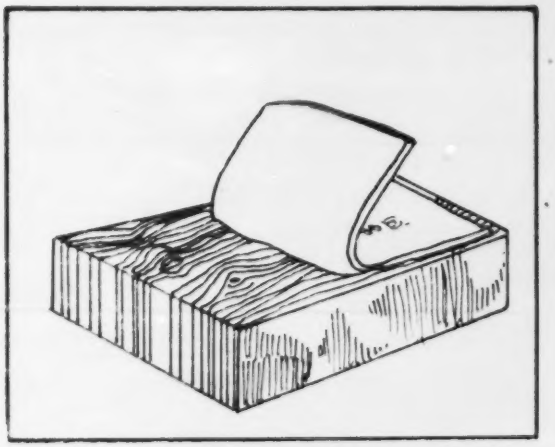


STEP 12 – Apply a moderate (small) amount of rubber cement to the smooth side of the stamp.



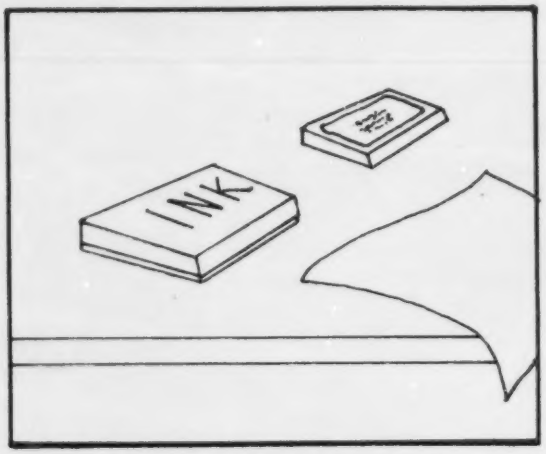
STEP 13 – Attach it to the block of wood.

Check Point

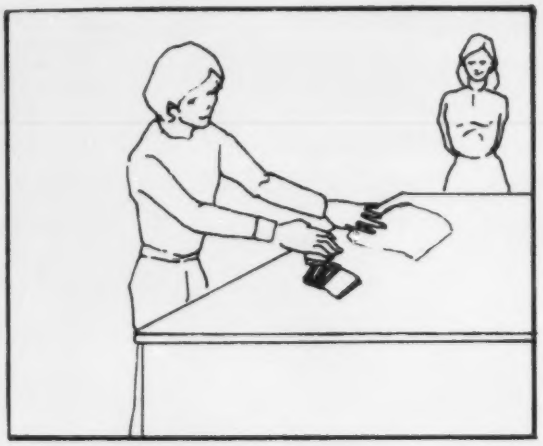
Have your instructor check your rubber stamp and initial your check sheet.

Instructional Objective IX

Each student will print a copy using the rubber stamp.



STEP 1 – Obtain an ink pad, your stamp, and some paper.



STEP 2 – Open the pad, press your stamp on it, inking the stamp surface.

STEP 3 – Applying even pressure, press the stamp down on the sheet of paper.

Check Point

Turn in two prints to your instructor, along with your completed check sheet. Return all materials to their proper place.

979.684-014 ENGRAVER (print. & pub.) II

Cuts letters and designs in linoleum and mounts cut articles on blocks for use in printing posters, using drawing and cutting instruments: Traces pattern of design and letters in reverse on linoleum, using ruler, pencil, and drawing instruments. Cuts around drawn pattern leaving raised design or letters, using cutting tools. Glues pattern to wooden block.

979.684-026 PRINT-SHOP HELPER (Print. & pub.)

Assists workers engaged in setting type, operating printing presses, and making plates, performing any combination of following duties: Moves material and supplies to and from various work areas. Assists in making ready and adjusting presses for production runs. Keeps presses supplied with paper stock. Cleans presses, printing plates, and type setups after use. Covers dampening rolls with wool or felt. Counts, stacks, and wraps finished printed materials. Cleans electrotype shells prior to casting, and removes excess metal from edges or backs of cast printing plates, using metal trimming and shaving machines. Trims stereotype matrices to size and drys them between steam or flame-heated plates. Immerses cast plates in copper and chrome plating solutions. Nails wooden blocks to backs of prepared plates to bring plates to printing level. May set type by hand following copy. May be designated according to work involved as ELECTROTYPER HELPER (print. & pub.); PHOTOENGRAVING HELPER (print. & pub.); STEREOTYPER HELPER (print. & pub.). Performs other duties as described under HELPER (any ind.).

979.687-018 PLATE GAGER (print. & pub.)

Examines and repairs engraved printing plates, using plate gage, cement, and tissue paper: Visually examines plates for defects, such as scratches, broken corners, or broken type. Measures plates to verify specified printing height of type-face, line-engraving, half-tone, and color printing areas. Builds up low spots on plate, using tissue paper and cement. Records type of defect on back of plate and routes plate to repair room.

979.581-010 ENGRAVER, RUBBER (print. & pub.)

Engraves rubber plates used in printing designs and lettering on fabric or other materials, using knife, mechanical drawing tools and handtools: Cuts strip of engraving gum (two- or three-ply rubber, cemented to cloth backing) from roll, using knife. Positions design over strip and traces outline or draws letters, using pencil and mechanical drawing tools, leaving impression in surface of strip. Cuts around impression with knife to one-ply depth and pulls cut rubber from strip, leaving raised design or lettering. Prepares additional rubber plates for jobs requiring colors by omitting different portions of design or lettering from each plate. Punches hole on either side of plate and inserts and clinches grommet around hole, using setting tool and hammer, for use in fastening plate to press.

979.381-030 SIDEROGRAPHER (print. & pub.)

Reproduces original engravings on metal plates used to print banknotes, bonds, and other securities, using gravers' handtools and machines: Cuts around designs on roller die to remove undesirable parts of assembled die, using graver, and assembles die from several rollers on which parts of design have been engraved. Lays out construction lines on steel plate, using trammel point, dividers, steel scribers, and gage, to aline subjects to be transferred. Scrapes and burnishes plate surface to remove imperfections, alines plate on transfer press bed, and positions engraved steel roll on plate, using magnifying glass to verify accuracy. Depresses lever that embeds engraved design on roll into steel plate. Examines transferred design and repeats process until exact reproduction is made. May reproduce design in soft steel rolls.

979.381-034 SKETCH MAKER (print. & pub.) I

Traces designs on wood-printing blocks or rollers preparatory to engraving by ENGRAVER, BLOCK (print. & pub.), using stylus, ink, and burnishing tool: Places drawing of design over wax paper and traces design, using stylus. Pours ink over wax paper to fill depressions made by stylus and wipes

away excess ink. Wraps inked paper around wood-printing roller or positions paper on printing block. Rubs back of paper, using burnishing tool (spoonlike instrument) to transfer inked design to roller or block. May print proof impression of design from etched printing rollers onto wax paper to verify accuracy of etchings and be called IMPRESSION PRINTER (print. & pub.).